Clarion

SERVICE MANUAL

Closer Relations through "CLARION SERVICE MANUAL"

MODEL GA-502E

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Export Division **CLARION SHOJI CO., LTD.**
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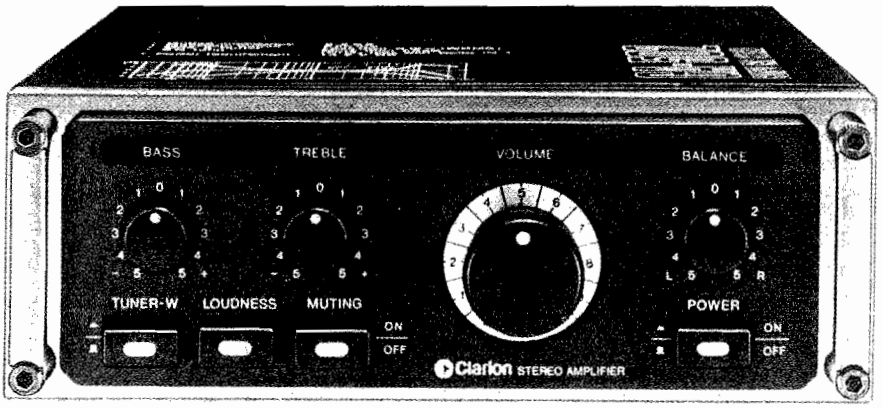


SPECIFICATIONS:

Maximum output:	20W×2 (Typ.) 12W×2 (at 10% distortion)
Input impedance:	Deck 50KΩ Tuner 50KΩ
Input level:	More than 0.2V
S/N ratio:	More than 60dB
Frequency response:	30Hz to 20KHz
Tone adjustment range:	
★Bass (100Hz):	More than ±12dB
★Treble (10KHz):	More than ±12dB
Loudness (−30dB):	
100Hz	More than +7dB
10KHz	More than +4dB
Muting:	20dB
Load impedance:	4Ω or 8Ω
Power source:	DC 14V (10.8V to 15.6V) ⊖ ground
Current consumption:	Less than 4.5A (at max. output)
Semiconductors:	4 ICs, 11 transistors and 1 diode
Dimensions:	Width 140mm Height 50mm Depth 140mm
Weight:	1.1kg

■COMPOSITION:

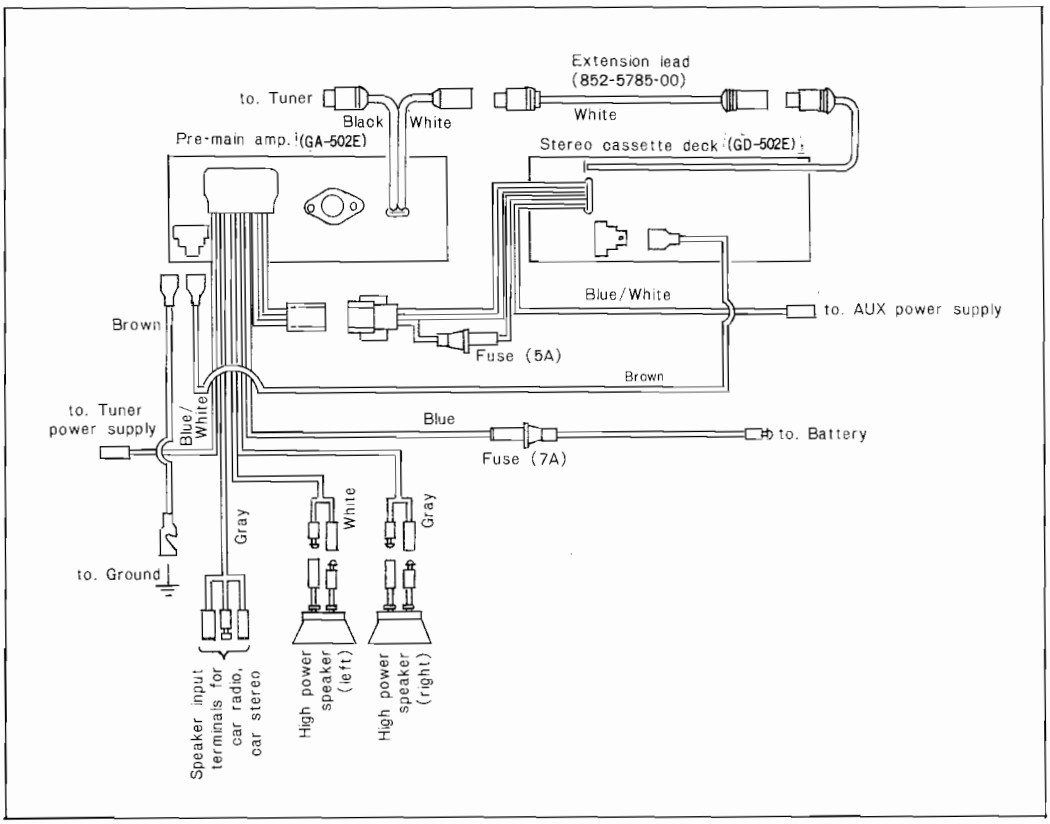
	Main unit	1
	Documents bag	1
852-5115-00	Earth lead	1
300-4976-00	Mounting bracket	1
300-5074-00	Mounting bracket	1

	Parts bag	1
060-0031-00	Hexagon wrench	1
723-5000-11	Hexagon nut(M5)	3
734-5010-31	D-sems hex-bolt(M5×10)	3
734-5016-31	D-sems hex-bolt(M5×16)	3
740-5000-10	Flat washer(M5)	3
850-1994-00	A-lead	1

■FEATURES:

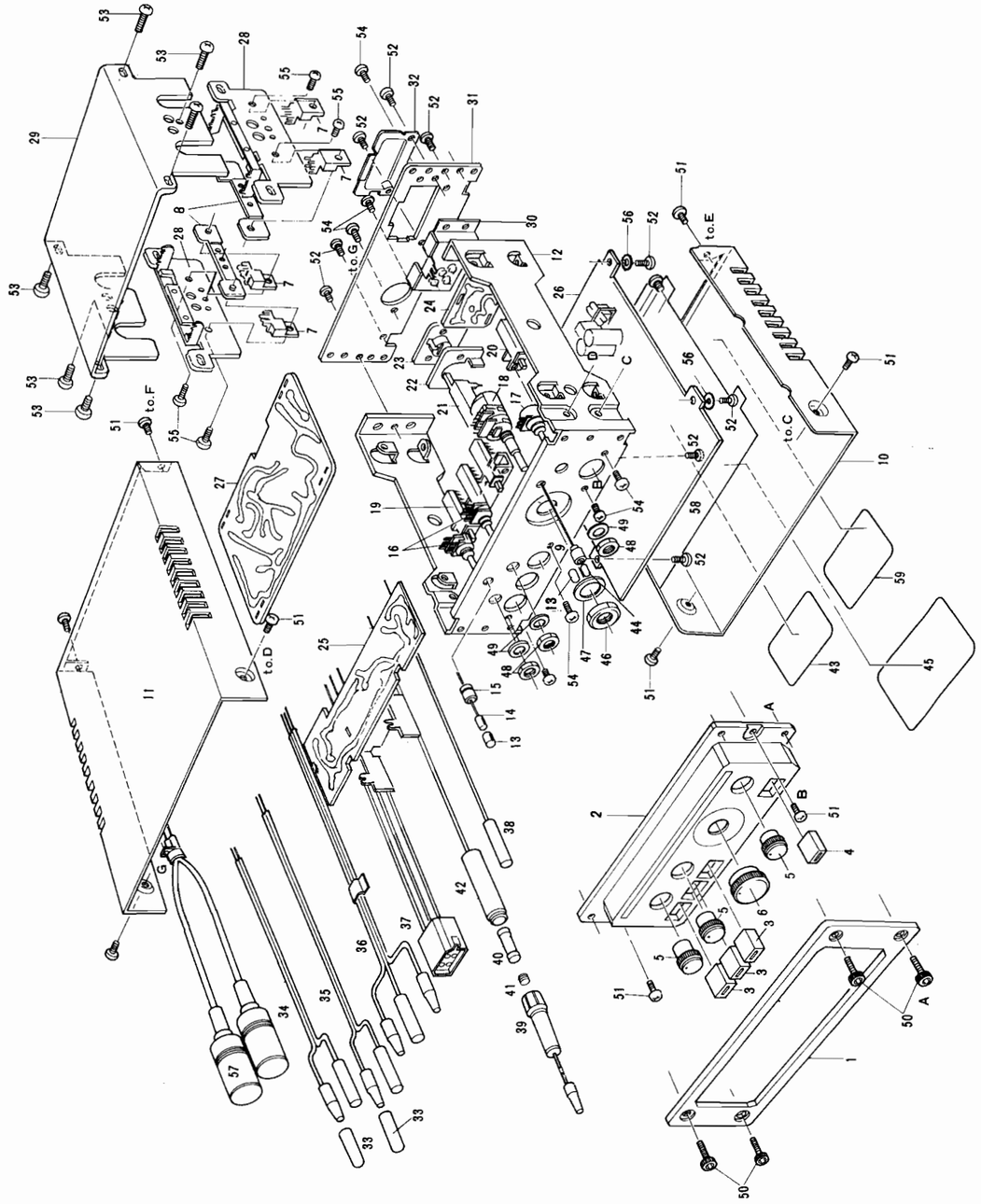
- Big 20W+20W power from two speaker system
  The power amp section was designed so that response does not deteriorate, even when playing at full power. Music with a wide dynamic range can be played back filling your car with undistorted sound.
- Independent bass and treble tone controls
  So that you can adjust the tone to suit your favorite sound, two tone controls are provided, one adjusting treble response and the other bass.
- Muting switch
  Just press this to reduce the output sound by 20dB. This is very convenient when it is desired to reduce sound volume quickly or when you need to care special attention to sounds.
- Loudness switch
  The car is less sensitive to high and low frequencies at low volumes. Press this switch and the loudness circuit automatically compensates, so that the tone at low levels is not degraded.

■WIRE CONNECTION:



■EXPLODED VIEW:

◎Main section



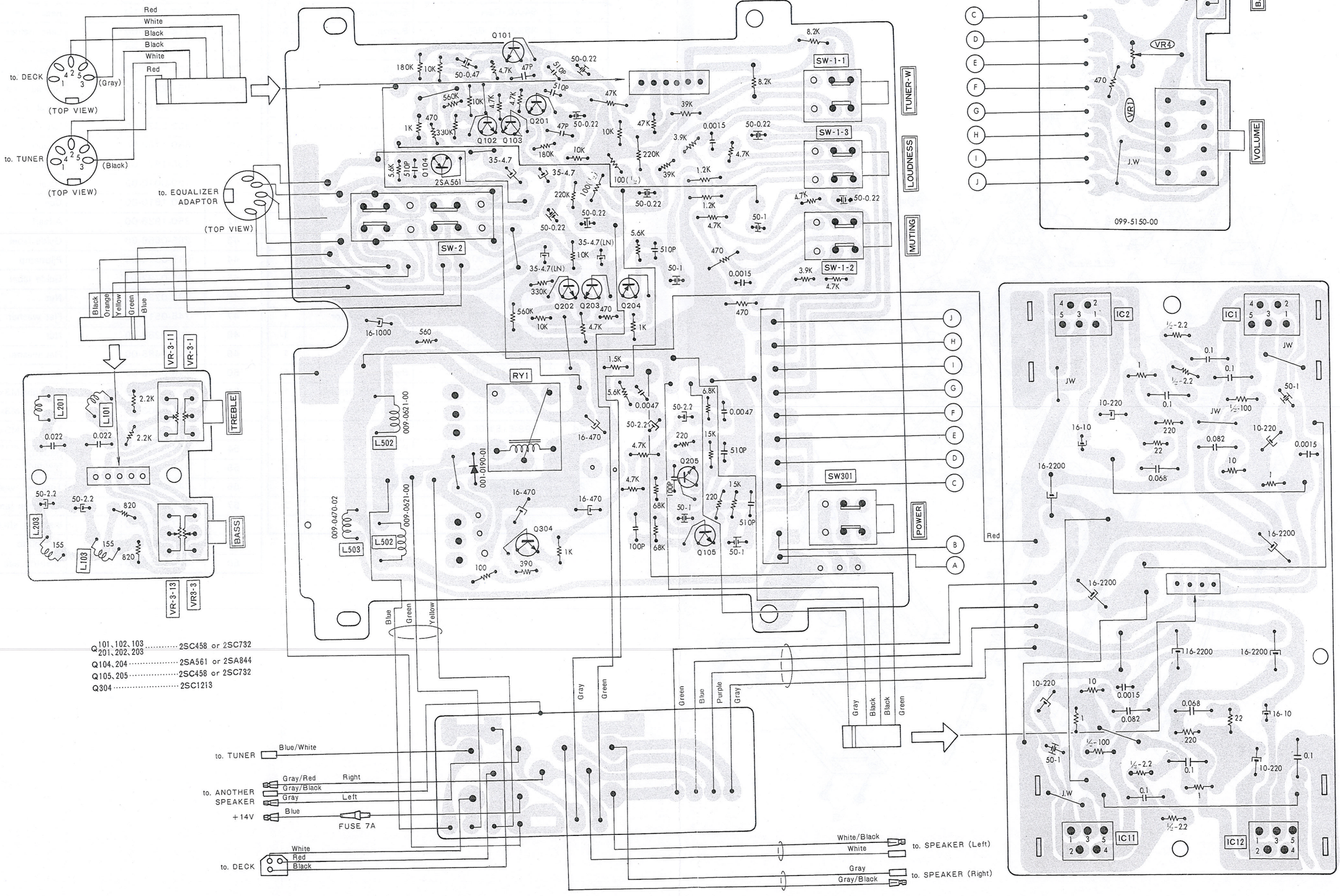
■PARTS LIST:

◎Main section

REF.NO.	PART NO.	DESCRIPTION	P.C.S
1	370-3116-00	Escutcheon	1
2	940-0162A	Escutcheon ass'y	1
3	382-0131-00	Button	3
4	382-0131-02	Button	1
5	380-3707-00	Knob	3
6	380-3777-00	Knob	1
7	051-0195-00	IC	4
8	330-6506-00	IC mounting bracket	2
9	345-2979-00	P.L holder	1
10	310-0937-00	Upper case	1
11	310-0937-03	Upper case	1
12	308-0908-00	Front cover	1
13	345-2830-02	P.L cap	2
14	017-0314-19	Pilotlamp	1
15	345-2886-00	P.L holder	1
16	012-3596-00	Variable resistor	2
17	012-3642-00	Variable resistor	1
18	012-3643-00	Variable resistor	1
19	013-3371-00	Switch	1
20	013-3398-00	Switch	1
21	013-3372-00	Switch	1
22	330-6373-00	Connector bracket	1
23	074-0560-00	Outlet socket	1
24	099-5151-00	P.W.B	1
25	099-5150-00	P.W.B	1
26	099-5148-01	P.W.B	1
27	099-5149-00	P.W.B	1
28	313-1025-00	Heat sink	2
29	313-1026-00	Heat sink	1

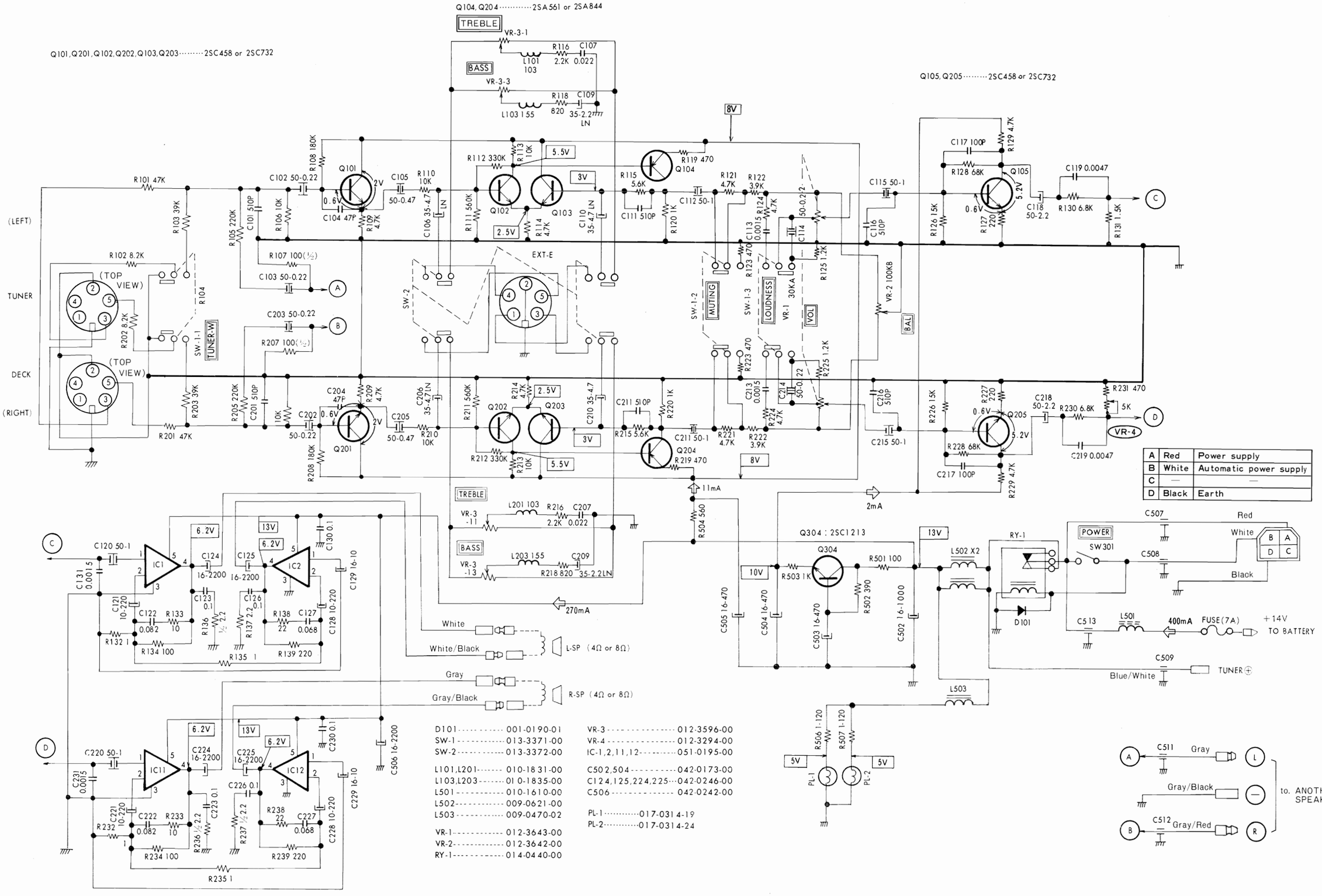
REF.NO.	PART NO.	DESCRIPTION	P.C.S
30	944-0515-00	Filter ass'y	1
31	307-0289-00	Rear cover	1
32	314-0388-00	Lead holder	1
33	335-0950-00	Lead cap	2
34	851-2260-01	Speaker lead	1
35	851-2260-00	Speaker lead	1
36	851-2218-00	Speaker lead	1
37	852-5577-00	Extension lead	1
38	850-1780-00	A-lead	1
39	850-1977-00	A-lead	1
40	120-0070-03	Fuse(7A)	1
41	010-1610-00	Coil	1
42	850-1938-00	A-lead	1
43	285-0656-00	Guide label	1
44	017-0314-24	Pilotlamp	1
45	285-0792-01	Guide label	1
46	722-0231-00	Nut	1
47	745-0514-02	Flat washer	1
48	722-0282-00	Nut	3
49	745-0485-00	Flat washer	3
50	716-0333-00	Screw	4
51	731-3006-89	Taptight(M3x6)	10
52	731-3006-80	Taptight(M3x6)	9
53	731-3008-80	Taptight(M3x8)	6
54	714-3006-80	Machine screw (M3x6)	7
55	714-3008-80	Machine screw (M3x8)	4
56	742-3000-20	Toothed washer(M3)	3
57	852-5746-00	Extension lead	1
58	347-0766-00	Insulator sheet	1
59	286-3678-00	Set plate	1
60	330-6558-00	Shield case	1

■PRINTED WIRING BOARD:



Q101、102、103 ..... 2SC458 or 2SC732
Q201、202、203
Q104、204 ..... 2SA561 or 2SA844
Q105、205 ..... 2SC458 or 2SC732
Q304 ..... 2SC1213

■CIRCUIT DIAGRAM:



A	Red	Power supply
B	White	Automatic power supply
C	—	—
D	Black	Earth

D101 001-0190-01
SW-1 013-3371-00
SW-2 013-3372-00

L101,L201 010-1831-00
L103,L203 010-1835-00
L501 010-1610-00
L502 009-0621-00
L503 009-0470-02

VR-1 012-3643-00
VR-2 012-3642-00
RY-1 014-0440-00

VR-3 012-3596-00
VR-4 012-3294-00
IC-1,2,11,12 051-0195-00

C502,504 042-0173-00
C124,125,224,225 ... 042-0246-00
C506 042-0242-00

PL-1 017-0314-19
PL-2 017-0314-24

■PARTS LIST:

◎Electrical section

REF.NO.	PART NO.	DESCRIPTION	P.C.S
D_{101}	001-0190-01	Diode	1
L_{503}	009-0470-02	Choke	1
L_{502}	009-0621-00	Choke	2
L_{501}	010-1610-00	Coil	1
$L_{101,201}$	010-1831-00	Coil	2
$L_{103,203}$	010-1835-00	Coil	2
VR_4	012-3294-00	Variable resistor	1
VR_3	012-3596-00	Variable resistor	2
VR_2	012-3642-00	Variable resistor	1
VR_1	012-3643-00	Variable resistor	1
SW_1	013-3371-00	Switch	1
SW_2	013-3372-00	Switch	1
RY_1	014-0440-00	Relay	1
PL_1	017-0314-19	Pilotlamp	1
PL_2	017-0314-24	Pilotlamp	1
$IC_{1,2,11,12}$	051-0195-00	IC	4
$Q_{104,204}$	100-0844-04	Transistor (2SA844D)	2
$Q^{101,102,103}_{105,201,202}$ $_{203,205}$	102-0458-02	Transistor (2SC458B)	8
Q_{304}	102-1213-01	Transistor (2SC1213A)	1
$R_{133,233}$	111-1001-32	Film resistor (¼W10Ω)	2
$R_{107,134,207,234}$	111-1011-42	Film resistor (½W100Ω)	4
$R_{120,220}$	111-1021-32	Film resistor (¼W1KΩ)	2
$R^{106,110,113}_{206,210,213}$	111-1031-32	Film resistor (¼W10KΩ)	6
$R_{125,225}$	111-1221-32	Film resistor (¼W1.2KΩ)	2
$R_{132,135,232,235}$	111-1091-32	Film resistor (¼W1Ω)	4
$R_{116,216}$	111-2221-32	Film resistor (¼W2.2KΩ)	2
$R_{126,226}$	111-1531-32	Film resistor (¼W15KΩ)	2
$R_{108,208}$	111-1841-32	Film resistor (¼W180KΩ)	2
$R_{127,139,227,238}$	111-2211-32	Film resistor (¼W220Ω)	4
$R_{105,205}$	111-2241-32	Film resistor (¼W220KΩ)	2
$R_{138,238}$	111-2201-32	Film resistor (¼W22Ω)	2
$R_{136,137,236,237}$	111-2291-42	Film resistor (½W2.2Ω)	4
$R_{112,212}$	111-3341-32	Film resistor (¼W330KΩ)	2
R_{502}	111-3911-32	Film resistor (¼W390Ω)	1
$R_{122,222}$	111-3921-32	Film resistor (¼W3.9KΩ)	2

REF.NO.	PART NO.	DESCRIPTION	P.C.S
$R_{103,203}$	111-3931-32	Film resistor (¼W39KΩ)	2
$R^{119,123,219}_{223,231}$	111-4711-32	Film resistor (¼W470Ω)	5
$R^{109,114,121,124}_{129,209,214,221}$ $_{224,229}$	111-4721-32	Film resistor (¼W4.7KΩ)	10
$R_{101,201}$	111-4731-32	Film resistor (¼W47KΩ)	2
R_{504}	111-5611-32	Film resistor (¼W560Ω)	1
$R_{115,130,215,230}$	111-5621-32	Film resistor (¼W5.6KΩ)	4
$R_{111,211}$	111-5641-32	Film resistor (¼W560KΩ)	2
$R_{130,230}$	111-6821-32	Film resistor (¼W6.8KΩ)	2
$R_{128,228}$	111-6831-32	Film resistor (¼W68KΩ)	2
$R_{118,218}$	111-8211-32	Film resistor (¼W820Ω)	2
$R_{102,202}$	111-8221-32	Film resistor (¼W8.2KΩ)	2
$R_{506,507}$	114-1212-52	Film resistor (1W120Ω)	2
$C^{123,126,130}_{223,226,230}$	141-1042-15	Polyester capacitor (50V0.1μF)	6
$C_{113,131,213,231}$	141-1522-12	Polyester capacitor (50V0.0015μF)	4
$C_{119,219}$	141-4722-12	Polyester capacitor (50V0.0047μF)	2
$C_{107,207}$	141-2232-13	Polyester capacitor (50V0.022μF)	2
$C^{101,111,116}_{201,211,216}$	141-5112-11	Polyester capacitor (50V510PF)	6
$C_{127,227}$	141-6832-13	Polyester capacitor (50V0.068μF)	2
$C_{122,222}$	141-8232-14	Polyester capacitor (50V0.082μF)	2
$C_{117,217}$	144-1012-13	Mica capacitor (50V100PF)	2
$C_{104,204}$	152-4702-13	Ceramic capacitor (47PFCH)	2
$C_{503,504,505}$	042-0173-00	Electrolytic capacitor (16V470μF)	3
C_{506}	042-0242-00	Electrolytic capacitor (16V2200μF)	1
$C_{124,125,224,225}$	042-0246-00	Electrolytic capacitor (16V2200μF)	4
$C^{112,115,120}_{212,215,220}$	180-1054-62	Electrolytic capacitor (50V1μF)	6
$C_{129,229}$	180-1063-32	Electrolytic capacitor (16V10μF)	2
$C^{102,103,114}_{202,203,214}$	180-2244-62	Electrolytic capacitor (50V0.22μF)	6
$C_{118,218}$	180-2254-62	Electrolytic capacitor (50V2.2μF)	2
$C_{121,126,221,228}$	180-2274-22	Electrolytic capacitor (10V220μF)	4
C_{502}	180-1084-32	Electrolytic capacitor (16V1000μF)	1
$C_{105,205}$	180-4744-62	Electrolytic capacitor (50V0.47μF)	2
$C_{118,218}$	181-2254-62	Electrolytic capacitor (50V2.2μF)	2
$C_{109,209}$	181-2253-52	Electrolytic capacitor (35V2.2μF)	2
$C_{106,110,206,210}$	181-4754-52	Electrolytic capacitor (35V4.7μF)	4

■MEMO